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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/037,674	03/09/1998	HIDEKI MIZUHARA	2933SE-11-CI	7419

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EXAMINER

NADAV, ORI

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 01/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/037,674

Applicant(s)

MIZUHARA ET AL.

Examiner

ori nadav

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-33 is/are pending in the application.
- 4a) Of the above claim(s) 16-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2811

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 31-33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification recites implanting impurities into an inorganic SOG film. There is no support for a modified SOG film formed by implanting boron impurity into an inorganic SOG film, as recited in claim 31.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Art Unit: 2811

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25-33, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(b) as being anticipated by Okumura et al. (4,984,055).

Okumura et al. teach in figure 13D a semiconductor device comprising a semiconductor substrate 1, an interlayer insulating film (ILD) 12 on the substrate, wirings 16 located on the ILD 12 and a passivation layer covering the surface of the ILD and the wirings, including a first insulating film 13 comprising modified SOG containing boron impurities (column 16, line 15), and a second insulating film 14 comprising oxide having a hygroscopicity lower than the first insulating film and being located on at least one of an upper side and lower side of the first insulating film.

Although Okumura et al. do not explicitly state that layers 13 and 15, respectively, are passivation layers, layers 13 and 15 meet the functional limitations of the claim since they protect the device.

Regarding the processing limitations ("a modified SOG film formed by implanting boron impurity into an organic/inorganic SOG film"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In*

Art Unit: 2811

re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

Regarding claims 26, 29 and 32, although Okumura et al. do not explicitly state that silicon oxide has a hygroscopicity lower than boron doped SOG, this feature is inherent in Okumura et al.'s device, because it is well known in the art that silicon oxide has a hygroscopicity lower than boron doped SOG, of which judicial notice is taken.

Regarding the processing limitations recited in claim 28 ("decomposing organic components by the selected impurity"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

5. Claims 25-33, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese patent (6-291202).

Art Unit: 2811

Japanese patent (6-291202) teaches in figure 1b a semiconductor device comprising a semiconductor substrate 11, an interlayer insulating film (ILD) 14 on the substrate, wirings 16 located on the ILD 12 and a passivation layer covering the surface of the ILD and the wirings, including a first insulating film 15 comprising modified SOG containing boron impurities (abstract), and a second insulating film 16 comprising silicon oxide having a hygroscopicity lower than the first insulating film and being located on at least one of an upper side and a lower side of the first insulating film. Although Japanese patent (6-291202) does not explicitly state that layers 13 and 15, respectively, are passivation layers, layers 13 and 15 meet the functional limitations of the claim since they protect the device.

Regarding the processing limitations ("a modified SOG film formed by implanting boron impurity into an organic/inorganic SOG film"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious

Art Unit: 2811

product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

Regarding claims 26, 29 and 32, although Japanese patent (6-291202) does not explicitly state that silicon oxide has a hygroscopicity lower than boron doped SOG, this feature is inherent in Japanese patent (6-291202)'s device, because it is well known in the art that silicon oxide has a hygroscopicity lower than boron doped SOG, of which judicial notice is taken.

Regarding the processing limitations recited in claim 28 ("decomposing organic components by the selected impurity"), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Response to Arguments

6. Applicant argues on page 4 that there is support on page 17, lines 17-19 of the specification for implanting boron impurity into an inorganic SOG film.

Art Unit: 2811

The specification recites on page 17, lines 17-19 implanting impurities into an inorganic SOG film. . There is no teaching for implanting boron impurity into an inorganic SOG film, as recited in claim 31.

7. Applicant's arguments with respect to claims 25-33 have been considered but are moot in view of the new ground(s) of rejection.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703)**

Art Unit: 2811

308-8138. The Examiner is in the Office generally between the hours of 7 AM to 3 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a horizontal line above the first name.

**TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**

Ori Nadav

January 24, 2002